



## Who we are

The Laboratory of speech and mobile technologies is part of Department of Electronics and Multimedia Communications which belongs to Faculty of Electrical Engineering and Informatics of the Technical University of Košice (FEI TU).

Total current number of the Laboratory staff members is 26 (6 Professors, 11 Research assistants, 8 PhD students).

The Laboratory was involved in FP7 and FP6 projects. Recently, more H2020 project proposals have been submitted.

## Research profile

Speech technologies for enabling and simplifying human-to-human and human-to-computer speech communication:

- Large vocabulary continuous speech recognition
- Speaker Identification & Biometrics
- Speech based diagnostics
- Text-to-speech synthesis
- Stochastic acoustic & language modeling
- Acoustic & text corpora for training and testing
- Dialogue modeling & management
- Natural language processing
- Statistical Language Modeling for Speech Recognition
- Information Services by Telephone using Speech Technologies
- Virtual Physiological Human
- Virtual agent multimodal interaction
- Cognitive systems in robotics and implementation of human-machine interaction

New mobile ad-hoc networks, Opportunistic networks, wireless sensor networks which would be particularly applicable in intelligent rural environments (Smart City – Factory – Home):

- Localization of mobile terminals
- Methods of cooperation in opportunistic networks with the localization process in routing process
- Routing & forwarding mechanisms for opportunistic networks, MANET, DTN and hybrid MANET - DTN
- Body area networks (BAN), iBAN
- 5G and nobile sensor networks
- V2V and M2M networks
- Security and trust mechanisms

## Areas of H2020 ICT Activity

- Content & Information: Big Data, Language Technologies, Creative Industries, Social Media, Gaming, Cognitive Systems, Interaction, Learning
- Future Internet: Network Technologies, 5G, Cloud Computing, Software & Services, Experimental Platforms,



- Collective Awareness/Social Innovation, Web Entrepreneurship
- Future & Emerging Technologies
- ICT Security, Trust, Privacy
- ICT for Health & AAL
- Robotics
- ICT for Inclusive, Innovative Societies: Culture, Education, Government, Inclusion



## Main research projects

**Technicom** (2013 - 2015) ERDF EU - University Science Park with focus on the innovation applications using knowledge based technologies, ITMS 26220220182

**INDECT** (2009 - 2015) 7<sup>th</sup> FPEU - Intelligent information system supporting observation, searching and detection for security of citizens in urban environment

**Modular Intelligent Robotic Systems**, (2011 - 2015) ERDF EU - Cognitive management for mobile platforms cooperating with humans ITMS 26220220141, collab: ZTS VVÚ Košice



**Centre of Competence** (2011 - 2015) ERDF EU - production systems and services - various research topics, ITMS 26220220141, collab: ZTS VVÚ Košice & Elcom

**MonAMI** (2006 - 2011) 6<sup>th</sup> FPEU - Mainstreaming on Ambient Intelligence, eInclusion, Information Society Technologies



## COST Actions

**CA15104 (2016-2020)** - Inclusive Radio Communication Networks for 5G and beyond

**CA15127 (2016-2020)** - Resilient communication services protecting end-user applications from disaster-based failures

**IC 1106 (2012-2016)** - Integrating Biometrics and Forensics for the Digital Age

**IC1004 (2011-2015)** - Cooperative Radio Communications for Green Smart Environments

**COST 2102 (2007-2011)** - Cross-Modal Analysis of Verbal and Non-verbal Communication

## National projects

**Cloud Based Human Robot Interaction** (2016-2020) APVV-15-0731

**Automatic subtitling of audiovisual content for hearing impaired** (2016-2020) APVV-15-0517

**Middle Category Complex Modular Robotic System with Higher Intelligence** (2010 - 2013) - Ministry of Education, collab: ZTS VVÚ

**Automated analysis, recognition and transcription of audio recordings** (2008 - 2009) - Ministry of Education

**SPEETIS - Speech Technologies for Advanced Telecommunication and Information Services in Slovak Language** (2007 - 2010) - APVV-0369-07

## Industry partners

**ZTS VVÚ KOŠICE a.s.** (ZTS Research and Development Institute Kosice) is a private joint-stock company operating in the field of engineering (machinery) and electro technical products. The institute ensured development of commercial vehicles, heavy hydraulic manipulators, transport and handling systems and small electronic control systems for production, technological and transport processes, special technics, forming machines, high-speed stamping press lines and stationary gear units. Košice, Slovakia.

**ELCOM PREŠOV s.r.o.** is a Slovak company which is engaged in the development, production and sale of electronic cash registers, POS systems, all-in-one panel PC, and professional displays and keyboards. They operate on the Slovak market, where they are the leader and they are also expanding abroad.

## Application outputs

**Smart Speech Communication Interface** - <http://speetis.fei.tuke.sk/video/irkr2011.wmv>

**Automatic Speech Dictation System** - <http://speetis.fei.tuke.sk/video/apd2011.wmv>

**Intelligent Control of Service Robot** - <http://speetis.fei.tuke.sk/video/scor2012.wmv>

**MOBILTEL** - [mobitel.tuke.sk](http://mobitel.tuke.sk)

Other links:  
[irkr.tuke.sk](http://irkr.tuke.sk), [speetis.fei.tuke.sk](http://speetis.fei.tuke.sk), [bn.kemt.fei.tuke.sk](http://bn.kemt.fei.tuke.sk)

## Contacts

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